

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1-14 (Cancelled).

15. (New) A coating material for coating facades and other building surfaces, the coating material comprising:

a binding agent; and

at least one filler including:

particles having a size and/or a surface roughness of about 10 μm or less; and

a photocatalytically active agent;

wherein the binding agent is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent to form a microstructured, self-cleaning surface that photocatalytically reduces by about 0.1 μm or more per year in response to external weathering as per Deutsches Institut für Normung e.V. Europäische Norm International Organization for Standardization (DIN EN ISO) 2810, the decomposition being equivalent to chalking level 1 or less as per DIN EN ISO 4628-6.

16. (New) The coating material of claim 15, wherein the microstructured, self-cleaning surface photocatalytically reduces by about 1 μm or more per year in response to external weathering as per DIN EN ISO 2810 (when sample is vertical and face of sample is oriented in direction of equator).

17. (New) The coating material of claim 15, wherein the binding agent is at least partially photocatalytically degradable and the photocatalytically active agent comprises at least one photocatalytically active metal oxide.

18. (New) The coating material of claim 15, wherein the binding agent comprises a nano-composite material including one or more of an aqueous polymer dispersion capable of being redispersed in water, a hydrophobic resin, and a preliminary resin product.

19. (New) The coating material of claim 15, wherein the binding agent includes silicone or silicate.

20. (New) The coating material of claim 15, wherein the photocatalytically active agent includes one or more oxides of titanium, zinc, iron, manganese, molybdenum, and tungsten.

21. (New) The coating material of claim 20, wherein the photocatalytically active agent includes about 60 weight percent or more of the one or more oxides, relative to a total weight of the photocatalytically active agent.

22. (New) The coating material of claim 21, wherein the photocatalytically active agent includes about 80 weight percent or more of the one or more oxides, relative to a total weight of the photocatalytically active agent.

23. (New) The coating material of claim 22, wherein the photocatalytically active agent includes about 90 weight percent or more of the one or more oxides, relative to a total weight of the photocatalytically active agent.

24. (New) The coating material of claim 15, wherein the photocatalytically active agent active agent comprises at least one additive selected from the group consisting of C, N, S, oxides of Pt, Rh, Mn, Cr, Ru, Ni, Pd, Fe, Co, Ir, Cu, Mo, Zr, Re, Ag, and Au, and halogenides of Pt, Rh, Mn, Cr, Ru, Ni, Pd, Fe, Co, Ir, Cu, Mo, Zr, Re, Ag, and Au.

25. (New) The coating material of claim 24, wherein the photocatalytically active agent includes about 40 weight percent or less of the at least one additive, relative to a total weight of the photocatalytically active agent.

26. (New) The coating material of claim 25, wherein the photocatalytically active agent includes about 20 weight percent or less of the at least one additive, relative to a total weight of the photocatalytically active agent.

27. (New) The coating material of claim 26, wherein the photocatalytically active agent includes between about 10 weight percent and about 1 weight percent of the at least one additive, relative to a total weight of the photocatalytically active agent.

28. (New) The coating material of claim 27, wherein the photocatalytically active agent includes about 2.5 weight percent or more of at least one additive, relative to a total weight of the photocatalytically active agent.

29. (New) The coating material of claim 28, wherein the photocatalytically active agent includes about 5 weight percent or more of the at least one additive, relative to a total weight of the photocatalytically active agent.

30. (New) The coating material of claim 15, wherein the photocatalytically active agent comprises titanium dioxide in a form selected from the group consisting of amorphous form, partially crystalline form, and anatase form.
31. (New) The coating material of claim 15, wherein the particles have a size and/or a surface roughness of about 1 μm or less.
32. (New) The coating material of claim 31, wherein the particles have a size and/or a surface roughness of about 0.1 μm or less.
33. (New) The coating material of claim 32, wherein the at least one filler includes one or more nano-fillers in the form of a highly-disperse silica.
34. (New) The coating material of claim 33, wherein the highly-disperse silica consists of a silica gel.
35. (New) The coating material of claim 34, wherein the silica gel is formed by precipitation using a sol gel process.
36. (New) The coating material of claim 15, wherein the at least one filler includes a monomodal particle size distribution having a mean particle diameter of about 10 μm or less.
37. (New) The coating material of claim 36, wherein the at least one filler includes a monomodal particle size distribution having a mean particle diameter of about 1 μm or less.

38. (New) The coating material of claim 37, wherein the at least one filler includes a monomodal particle size distribution having a mean particle diameter of about 0.1 μm or less.
39. (New) The coating material of claim 15, further comprising an excess of filler.
40. (New) The coating material of claim 15, further comprising a selected one or more of a pigment, an accelerator, and a retarder.
41. (New) The coating material of claim 15, further comprising a pigment distributor, a thickener, another filler, a pigment, a hydrophobization agent, a preservative, and water.
42. (New) The coating material of claim 15 comprising between about 10 to about 30 weight percent of the binding agent; between about 2 and about 30 weight percent of the filler; between about 2 and about 15 weight percent of a photocatalytically active pigment; between about 0.1 and about 1 weight percent of a thickener; between about 5 and about 30 weight percent of another filler; between about 10 and about 20 weight percent of a pigment; between about 2 and about 8 weight percent of hydrophobization agent; about 4 weight percent or less of a solvent; about 0.8 weight percent or less of a preservative; and about 35 weight percent or less of water.
43. (New) A method comprising:
providing a coating material including:
a binding agent; and
at least one filler including particles having a size and/or a surface roughness of about 10 μm or less and further including a photocatalytically active agent;

wherein the binding agent is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent to form a microstructured, self-cleaning surface that photocatalytically reduces by about 0.1 μm or more per year in response to external weathering as per DIN EN ISO 2810 (when the sample is vertical and the face of the sample is oriented in the direction of the equator), the decomposition being equivalent to chalking level 1 or less as per DIN EN ISO 4628-6; and coating at least a part of a building using the coating material.

44. (New) The method of claim 43, wherein said coating comprises coating an external façade of a building.

45. (New) A method of manufacture comprising:
providing at least one filler including particles having a size and/or a surface roughness of about 10 μm or less and further including a photocatalytically active agent; and
combining with the at least one filler a binding agent capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent to form a microstructured, self-cleaning surface that photocatalytically reduces by about 0.1 μm or more per year in response to external weathering as per DIN EN ISO 2810 (when the sample is vertical and the face of the sample is oriented in the direction of the equator), the decomposition being equivalent to chalking level 1 or less as per DIN EN ISO 4628-6.

46. (New) The method of claim 45, wherein said combining comprises combining with the at least one filler a binding agent binding agent that is at least partially photocatalytically degradable.

47. (New) The method of claim 45, wherein said providing comprises providing at least one filler including particles having a size and/or a surface roughness of about 10 μm or less and further including at least one photocatalytically active metal oxide.